

CLAIMS

1. A method for obtaining a recombinant plant of the *Cichorium* type, having tuberous roots, characterized in that it comprises the steps of:
 - 5 a) performing a cross-breeding between a batch of female plants of a variety of the *Cichorium intybus L* species having tuberous roots and a batch of male plants of a variety of the *Cichorium endivia L* species and obtaining a F1 generation hybrid plant population resulting from said cross-breeding;
 - 10 b) performing a self-fertilization of F1 generation hybrid plants resulting from step a) and obtaining F2 generation recombinant plants derived from said cross-breeding;
 - 15 c) selecting F2 generation recombinant plants, wherein the buds or the roots thereof do not have any visible alterations caused by a viral, bacterial or fungal infection, particularly by *Erwinia carotovora*, by *Sclerotinia Sclerotiorum*, or even by *Phytophtora cryptogea*;
 - d) forcing F2 generation recombinant plants selected in step c) for 10 to 18 days under the following forcing conditions:
 - 20 - nutriment solution temperature: 15°C to 17°C;
 - room temperature: 15 to 17°C;
 - e) cloning F2 plants obtained at the end of step d) and obtaining regenerated buds;
 - f) pricking out regenerated buds on an appropriate culture medium until recombinant young plants are obtained.
- 25 2. The method according to claim 1, characterized in that the forcing step d) is followed by a step d1) wherein the resulting young chicories are selected, before the cloning step e), according to the three following phenotype classes:
 - 30 (i) PPI: very numerous narrow leaves on a plate-shaped root neck;
 - (ii) GPI: typology similar to the endive, but with a narrow and indented leaf, and
 - (iii) TFR and SCA: very dentate branched leaves.

3. The method according to any one of claims 1 or 2, characterized in that it comprises the following additional steps:
 - g) cultivating in the ground small recombinant plants obtained at the end of step f);
 - 5 h) self-fertilizing F2 recombining plants as obtained in step g) and obtaining F3 generation recombining plants through cultivating in the ground.
- 10 4. The method according to claim 3, characterized in that the F3 generation recombinant plants obtained in step h) are subjected to a forcing step i) for a period of 10 to 18 days, under the following forcing conditions:
 - nutrient solution temperature: 15°C to 17°C;
 - room temperature: 15 to 17°C;
- 15 5. The method according to claim 4, characterized in that it further comprises a cloning step j) of the young recombinant chicories obtained at the end of the forcing step i).
- 20 6. The method according to claim 5, characterized in that the cloning step j) comprises cloning the fragments of leaf nervure of young plants obtained at the end of the forcing step i) and regenerating the F4 generation recombinant young plants.
- 25 7. The method according to claim 5, characterized in that the cloning step j) comprises cloning the end buds of young plants obtained at the end of the forcing step i) and regenerating the F4 generation recombinant young plants.
- 30 8. Recombinant plants obtained by the method according to any of claims 1 to 7, characterized in that they have (i) tuberous roots and (ii) indented leaves.
- 35 9. Recombinant plants according to claim 8, characterized in that they belong to class PPI and have the following common phenotype characteristics:

- more than 100 leaves per root at the completion of the forcing;
- no secondary axis;
- very narrow basis of each leaf:
ratio width of the leaf basis/height of the leaf ranging from 0.06 to 5 0.10;
- deep indentations of the limb:
ratio depth of the indentation/length of the indentation tip to the leaf axis ranging from 0.60 to 0.85;
- The edge of the indentations comprises or not secondary 10 serrations;
- The colour of the nervures is white or red;
- The colour of the limb is yellow or red;

10. Recombinant plants according to claim 8, characterized in that 15 they belong to class GPI and have the following common phenotype characteristics:

- from 20 to 35 leaves obtained per root at the completion of the forcing;
- no secondary axis;
- deep indentations of the limb up to the leaf basis:
ratio depth of the indentation/length of the indentation tip to the leaf 20 axis ranging from 0.60 to 0.85;
- The edge of the indentations comprises or not secondary serrations;
- The colour of the nervures is white or red;
- The colour of the limb is yellow or red;

11. Recombinant plants according to claim 8, characterized in that 30 they belong to class TFR or SCA and have the following common phenotype characteristics:

- from 20 to 35 leaves obtained per root at the completion of the forcing;
- 2 to 5 axes secondary to the main axis occurring in the basal half of the leaf;
- deep indentations of the limb;

ratio depth of the indentation/length of the indentation tip to the leaf axis ranging from 0.60 to 0.85;

- The edge of the indentations comprises or not secondary serrations;

- 5 - The colour of the nervures is white or red;
- The colour of the limb is yellow or red;